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Post-Truth:
Hoaxes, Misinformation, Trust and Reputation in the Network Society

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ABSTRACT

Information quality is an increasingly pressing problem in network society, as it is the price we pay for the information overload afflicting us. This article illustrates three empirical cases that will help provide a better understanding of the range and breadth of misinformation, distinguishing between hoaxes, rumors, and conspiracies. The following sections discuss the limitations of remedies based on fact checking and debunking, and of proposed legislation to counter misinformation. The conclusions suggest several approaches to learning to deal with misinformation which should be addressed by future research: the processes of building and assessing reputation, the development of pragmatic trust, the dangers of the bubble effect, and the need for greater transparency concerning the algorithms that control online platforms.

KEYWORDS

Conspiracy Theory, Fake News, Hoaxes, Misinformation, Post-Truth, Reputation, Rumors, Sociology of Knowledge

INTRODUCTION

By nature, digital society tends towards the constant, progressive accumulation of data. New forms of social inequality are arising, not only in connection with the ownership and control of these data, but also and above all in people's ability to interpret, understand and use them to improve their lives. Today we live in a social ecosystem where data, information and knowledge are no longer scarce resources to be hoarded. On the contrary, we are in a permanent state of information overload.

Ordinary people take part in ambitious collective enterprises: they develop encyclopedias by contributing entries on topics where they have no specific expertise, or they present and publicly comment on events and news without being professional journalists. Though the contractions are by no means lacking, these enterprises do not founder into chaos as might be expected: in many cases, the products they beget are useful, usable and entirely respectable. In recent years, citizen participation has also been extended to scientific research, and has taken forms that can be seen as a break with the academic tradition, in a move towards what has been called post-academic science (Ziman, 2000) or Mode 2 science (Nowotny et al., 2001).

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These changes make knowledge increasingly difficult to define. No longer an ivory tower, science is now regarded as fully immersed in society, and thus subject to its constraints and, at times, its caprices. While it is true that society relies more and more on science and technology, it is no less true that the directions and modes of scientific development are increasingly dependent on policy decisions, which in turn reflect the public's culture, values, emotions, hopes and fears. This is especially clear when it comes to regulating, and possibly funding, scientific research in areas where public opinion is divided: genetically modified organisms, nuclear power, climate change, stem cell experiments and so on. Citizen science, by providing openings for active participation by non-specialists, also ends up by opening the black box of science to the public, revealing the inner workings that once were once concealed behind laboratory walls (Latour & Woolgar, 1979) and are now, ever more frequently, online for all to see. Thanks to the spread of open access, for example, the specialist literature not only circulates freely in the scientific community, but also falls into the hands of a reading public that is often ignorant of its lexicon and basic assumptions.

The question thus arises: what happens when scientific knowledge, like other forms of knowledge before it, lifts the curtains on the processes that produce it and allows various kinds of bottom-up participation, but these opportunities are – obviously – also available to laypeople who are unfamiliar with the most basic historical principles of the scientific method? Science differs from other forms of knowledge in a variety of ways: its hypotheses must be falsifiable (if a hypothesis is formulated in such a way that it is not possible to imagine a way to refute it, then it cannot be considered by science), its empirical results must be reproducible (no scientist will ever agree to discuss my discoveries with me unless I provide all the details needed to retrace my steps and arrive at the same findings), and its use of Occam's razor (the principle that if a phenomenon is fully explained by a simple theory, it is not necessary to look for a more complex one). What happens when a person who is ignorant of these and many other epistemological foundations of science can, thanks to the Internet, social media and open access, compete with a paper that has just been published in an international peer reviewed journal with a post on the same topic, but reaching diametrically opposite conclusions, in Facebook pages with names like "Things nobody will tell you"?

One of the results is the proliferation of fake news, hoaxes and online misinformation in general. Misinformation is increasingly acknowledged to be a true scourge of the network society. Some commentators have even held this more or less deliberate "information pollution" responsible for a number of unexpected events that have recently rocked the international scene, such as Brexit or Donald Trump's election as President of the United States. The concept of post-truth is fast becoming a part of everyday speech, particularly with reference to politics. The term has also begun to be used ideologically: "hoax", for example, is a charge leveled against adversaries' opinions to discredit them, at times even by those in high political office. This is what happened in Italy, when then-premier Matteo Renzi's blog post of April 14, 2016 openly labeled the referendum to curb offshore drilling as a "hoax", urging voters to boycott it[1].

Though it is true that the amount of online misinformation has grown in recent years, it cannot all be classified as hoaxes in the strict sense, and in many cases the boundaries between information and misinformation are fuzzy and highly subjective. It is thus worthwhile to try to distinguish between the various types of "misinformation" in order to gain a better understanding of the problem's nature.

METHODOLOGY

The first research question is as follows: is it possible, and useful, to distinguish between different types of misinformation?

This leads to a second question, which this article will not address directly, as it limits itself to suggesting directions for future research: on the basis of the answers to the first question, what strategies can be effective in dealing with misinformation in our daily lives?

To answer the first question, the next sections present three short case studies taken from the Italian Web, which the author has explored for many years. Though case study research has long been used to explore and explain (Yin, 2002), we will restrict ourselves to a simple description. The first goal, in fact, is to deconstruct the generic notion of misinformation, demonstrating how it is used as a single label designating a number of quite different things.

The three cases are thus descriptive in intent and were selected in order to maximum the differences between several types of misinformation: in other words, they are the cases that can "teach us more". In this sense, the choice of these three cases can be seen as the fruit of purposive sampling carried out on the basis of the researcher's expert judgment (Teddlie & Yu, 2007). The aim is not to construct an exhaustive taxonomy of all possible types of misinformation, but simply to illustrate some of the differences that can make it problematic to use a single term to cover such a wide range of dissimilar things. Sampling thus stopped with these three cases.

Though misinformation on the Italian Web has been monitored since 2010, data regarding the cases presented here were collected primarily in the period 2015-2016 and are part of a larger dataset that was explored using a qualitative analysis software package (CAQDAS).

Particular attention was devoted to the ethical aspects of the study. All of the data that were collected and analyzed are public, i.e., can be freely viewed by anyone, with no need to register on specific online platforms or services. For this reason, we did not feel that it was necessary to notify subjects of the study or obtain any form of informed consent. In addition to not making his presence known, the researcher did not participate in online discussions and thus did not interfere with the investigated area. Though data were public, the subjective aspects of participants' privacy were borne in mind, and names, nicknames or other personal data have not been disclosed. This study complies with the recommendations of the Association of Internet Researchers (AoIR) Ethics Working Committee (Markham & Buchanan, 2012).

HOAXES

Why aren't these things on the news? how come the news is always about Belen? Why doesn't the Italian public know these things? Yesterday, with 257 votes in favor and 165 abstentions, the Senate approved a bill presented by Senator Cirenga to establish a fund for "MPs in crisis" before the forthcoming end of the legislature. The fund is slated to allocate 134 billion euros to assist all members of parliament who do not find a job in the year after the end of their term. And this in a country where people with ALS have to pay for their treatment themselves. Think about it and pass it on!!!

This news appeared on Italian social media at the end of 2012 and within a few months had been shared 150,000 times. It periodically reappears, and again in 2015 circulated as a scanned sheet of paper bearing the printed text. Naturally, it is entirely false. The interesting thing, however, is the sheer number of clues that should have pointed to the hoax, or at least instilled doubts concerning the item's authenticity:

Adding the 257 votes in favor to the 165 abstentions gives a total of 422 votes cast, whereas it is common knowledge that the Italian Senate has 315 members.

There is not now, nor has there ever been, a senator named Cirenga.

The sum indicated, 134 billion euros, is around 10% of Italy's gross national product, an enormous amount which is clearly implausible.

No bill to assist "MPs in crisis" was ever introduced, much less approved.

The text states that the reported event took place "yesterday", but no date is mentioned.

Each of these points could have been checked in a matter of seconds on search engines, online encyclopedias and official websites by anyone inclined to do so. The item concluded with an appeal to "think about it and pass it on", when it is clear that no one who shared it stopped to think (or even

bothered to google "Senator Cirenga"). We are obviously dealing here with a prank, a hoax, or in other words, with something demonstrably false, cooked up with a certain amount of care by an unknown author with the deliberate intention of rousing the reader's indignation and provoking a response.

RUMORS

See photo at:

http://tudnodkell.info/data/news/teasers/2015/12/20/0924/farkasok.jpg.1200x630_q85_crop-center_upscale.jpg

The first 3 wolves are the weak and sick ones. They set the pace for the rest of the pack. If it were the other way around, they would have been left behind and would have died. In the event of an attack, they are the first to be sacrificed. They create the path through the snow, so that ones that follow conserve energy. They are followed by 5 strong wolves who make up the vanguard, while at the center is the pack's wealth - 11 bitches. The next 5 wolves make up the rear guard. The last wolf, almost isolated from the pack, is the leader. He must have a good view of the entire group in order to control, direct and coordinate it, and give the necessary orders.

Photo: Vanatori Neamt Nature Park, Romania.

This photo and description of a pack of wolves appeared on an Italian user's Facebook profile on December 18, 2015. Six days after it was posted, i.e., by December 24, it had already garnered 12,000 likes and 48,000 shares; naturally, these numbers continued to increase after that date[2]. A few examples of the numerous comments are given below (in the exact form in which they appeared):

Too intelligent the only thing it can't do is talk they are too superior to humans

I like the wolf a lot because it's wild and it's anarchic

I think we have a lot to learn!

What a marvelous and moving thing! The wisdom of nature

When animals teach man the force of the group of staying together of the family of real leaders and of the preservation of the species, a far cry from our cuckolded families... Our politicians who are corrupt 4 their own good ...our leaders and ..leaders only 4 personal gain

We're the ones who are animals, we have to learn from them.

Actually, the photo was not taken in Romania, but in Canada, and depicts a pack of wolves who are being monitored by scholars because it is exceptionally large and specializes in hunting bison. The animal at the head of the line is the alpha female, the pack leader. The description that readers found so moving and so exciting is thus completely invented: in nature, wolf packs are formed by a dominant pair who explore the territory first, usually followed by their young and, at times, other individuals, with no distinction between males and females (partly because the alpha female is normally the only one to mate and breed). Old or weak individuals who are no longer able to keep up with the pack

are gradually marginalized and finally excluded, which generally results in death. In short, what the comments hailed as the "teachings of Nature" is in fact exactly the opposite of what really happens in nature (as true devotees of wolves or dogs know perfectly well).

It is interesting to note that out of the 72 comments that had appeared six days after the item was posted, and alongside the enthusiastic and poetic reflections, a full 15 pointed out that the description was false and provided a full armory of links to pages debunking it. Despite this, the positive comments continued undeterred, confirming the findings of studies (Friggeri et al., 2014) regarding resistance to refutation in the circulation of misinformation on the Internet. It appears that whether or not content is shared on social media depends to a considerable extent on its ability to elicit emotions (be they positive or negative) and on its cognitive consonance with the existing belief system (in this case, a stereotyped image of the wolf that is very far from the scientific narrative). It hardly matters if this content is shown to be false or inexact. Another comment exemplifies this attitude: "Why couldn't it be true ...for me it is ...even if it weren't it's a nice Story." They thus tend to blur the boundaries between scientific knowledge, personal tastes and beliefs, romance and poetry. Once the traditional barriers have fallen, everything seems only a mouse click away and a misguided view of the Internet's "democracy" fosters the belief that, when all is said and done, all opinions have the same worth and the same right to be expressed: the opinion of someone who has studied wolves in the field for decades, and the opinion of someone emoting on the sofa at home while watching Disney cartoons.

However, by contrast with the previous case of "Senator Cirenga", what we have here is not, technically, a real "hoax": it is not false content deliberately engineered to trigger reactions and go viral. Though it cannot be said with certainty, it would seem that this case is more the product of a layering of "free interpretations" and of versions translated into different languages (my attempt to trace the exact genesis of this story led me to French, Romanian, Russian and Canadian webpages). In this sense, it has more in common with the typical evolution of rumors, which through cumulative processes of simplification, selective emphasis and adaptation to personal prejudices can transform a half-truth into a complete lie, as described decades ago by the classic psychological analysis of rumors (Allport & Postman, 1946).

CONSPIRACIES

See photo at:

http://www.sciechimiche.org/scie_chimiche/images/stories/NewsBlog/071110_3.jpg

White trails in the sky: danger arrives in "silence".

We've all happened to look up and see the sky furrowed with those white trails that planes leave behind. "Those white trails" are a serious threat for our planet. They should be a natural phenomenon, but instead they can conceal something that's very dangerous… Those that we've all seen are different trails, longer and so persistent that they can hang in the air for hours: they are chemtrails, chemical trails, not to be confused with other, normal substances discharged from airplanes, as in crop dusting, firefighting or cloud seeding. … Some people maintain that chemtrails are highly suspicious and could be part of a plan to lower living standards for the entire human race, a plan cunningly contrived by the financial powers that be. The growing suspicion in scientific circles is that there is a deliberate attempt to blame the planet's warming on industrial emissions in order to hide what might be the real causes: military experiments in climate change. What these trails can lead to is the destruction of the earth's ecosystem, flora, fauna and population. Some theories link chemtrails to flu epidemics, including SARS, bird flu, mad cow disease, etc. The disconcerting thing is the "deafening" silence surrounding the issue in the press and the media.

The text is taken from the most widely-read post[3] on the website www.sciechimiche.org, which maintains that airplane contrails consist of chemical substances sprayed in secret at the orders of sinister supranational powers, for undisclosed purposes ranging from climate modification to mind control of the entire population.

This is an example of what is now called "conspiracism". In general, "conspiracy theories" have a logical formulation that cannot be refuted. In this particular case, it is not possible to demonstrate empirically and definitively that airplanes that spray chemtrails do not exist somewhere in the world. Confronted with the evidence that this or that specific plane is a normal scheduled flight, with normal passengers and normal contrails, believers in the conspiracy can always argue that "other" planes exist that are responsible for chemtrails. From this point of view, conspiracy theories are not falsifiable in the most classic and elementary sense of Karl Popper's epistemology, and thus cannot even be resolved through scientific investigation. There are a number of arguments that demonstrate that the white trails we see in the sky have no characteristics (in shape, duration, color or otherwise) that cannot be readily explained as the result of the normal condensation of aircraft exhaust in accordance with known laws of physics and chemistry. This, however, does not prevent the birth and persistence of more complex alternative theories which attempt to explain the same phenomena by dragging in an array of hidden organizations, secret maneuvers and alien entities, all in a blatantly cavalier violation of that basic principle of scientific thinking mentioned in the foregoing pages, Occam's razor (if a phenomenon is fully explained by a simple theory, it is not necessary to look for a more complex one). From the standpoint of the sociology of knowledge, it is not terribly important whether conspiracy theories are "true" or "false" (it is undeniable that there are historically proven cases of conspiracies). What is important is that they are belief systems that are alternative to science, and often compete with it to explain the same phenomena.

The attraction exerted by conspiracy theories is by no means new and was described during the last century chiefly as a form of paranoia (Hofstadter, 1964). Today, when the world of information and communication has been entirely transformed by the Internet, such a description is unacceptably simplistic: people who support these theories can in no way be classified as "paranoids" (or at least in the clinical sense, with the inevitable exceptions). Rather, even conspiracy theories are set out on the shelves of ready-made knowledge displayed in the enormous shop window that is the Internet and social media, becoming an integral part of a popular culture of the Web (Swami & Coles, 2010). Their spread thus comes as no surprise: according to a recent survey[4], one third of Americans believe that global warming is a myth propagated by scientists in order to get funding, while 19% are convinced that childhood vaccinations cause autism. In the years following the 9/11 attack on New York's Twin Towers, a number of studies found that more than a quarter of American respondents suspect or firmly believe that the US government had a role in the events, either participating directly or taking no action to prevent them (Swami & Coles, 2010). Once again, our intention here is not to stigmatize these theories as "true" or "false", but simply to acknowledge the spread, thanks in part to the Internet, of alternative or parallel beliefs, with varying degrees of incompatibility with the official versions provided by scientists or the media.

Though it is true that belief in conspiracy theories cannot be dismissed out of hand as a paranoid personality trait, it is nevertheless interesting to ask what social conditions encourage the growth of these alternative theories, and which segments of the population are affected. Here, several studies that have attempted to measure the psychological characteristics of "conspiracy theorists" empirically arrive at different conclusions: some see these believers as individuals with a sense of powerlessness in facing the world's complexity and who have little trust in other people (Goertzel, 1994), while other more recent studies (Swami et al., 2010) measured the correlation with a personality factor associated with intellectual curiosity, active intelligence and a proclivity for new and unconventional ideas. In any case, all studies confirm that the best predictor of a conspiracist belief is belief in other conspiracy theories (Bessi et al., 2015; Goertzel, 1994; Sunstein, 2009; Swami et al., 2010). In other words: someone who believes in a certain conspiracy theory also tends to believe in others, even if

they deal with completely different subjects. This is probably because belief in a conspiracy theory is not due to its ability to explain that single and specific event in a logically satisfying way, but because of these theories' general consistency with an overarching worldview. This view tends to set "us" against "them", where a "good" vanguard seeks to inform an "unaware" majority of a truth that has been concealed by an "evil" oligarchy in collusion with those who control information: scientists and the mass media chief among them. Once this generic and highly simplified model of what goes on in the world has been espoused, conspiracy theories often end up by mutually confirming and reinforcing each other. As control over information is a fundamental part of this model, the Internet and social media become powerful tools for individuals to circulate these truths that are "hidden" by the traditional mass media.

PRAGMATIC TRUST AND REPUTATION

Today, ordinary people produce content through channels that run parallel to those of the media industry (fandom and user-generated content on social media) (Jenkins, 2006), give shape to successful large-scale cooperative projects (the world of free and open source software) (Benkler, 2006), coordinate and find pragmatic solutions for dealing with the complexity of different points of view (the case of Wikipedia) (Hansen et al., 2009), collect news and comments, renewing and extending the space occupied by the public sphere (participatory and bottom-up journalism) (Goode, 2009), and participate in collecting and analyzing scientific data (citizen science) (Nowotny et al., 2001). But the same people often share hoaxes, pass on chain letters and other pyramid schemes, and spread baseless news or information. The limitless opportunities for action afforded by the Internet are also fraught with questions, ambivalences and problems, some of which concern the quality of the information produced through such practices, and the role of the sources which we hitherto regarded as authoritative.

If, as is often said, knowledge in network societies is no longer a scarce resource, the problem of how to choose what deserves our attention is more pressing than ever. Today knowledge rests on increasingly pluralistic foundations, is less and less filtered by central authorities, and, in the final analysis, takes on an ever more complex form. If it once could be imagined as a pyramid, now it tends to reflect the elusiveness of the Internet: horizontal, hydra-headed, with no clear apex to aim for (Weinberger, 2011).

However, the lack of filters and intermediaries is only apparent: in reality, we all apply our own personal criteria, at times unconsciously, for deciding whether what we read on the Internet is reliable and relevant. Basically, why do we believe we can trust a certain news item read on a website? Perhaps because that news is consistent with and confirms our convictions, or because it is written in a rhetorically effective way, or again, because the site indicates its sources in detail. Or perhaps because the person who wrote it is a friend of many of our friends on a social network, or is well-known and authoritative, or the site where the news appears is itself well-known and authoritative. Or more simply, because that page is the first hit on the search engine we are using. More often, it is a combination of all these and many other factors, all with a different weight for each of us and for each of the situations we are dealing with.

We can ask, for example, what makes us believe that Wikipedia is a fairly useful site in the whole, to the extent that we now habitually consult it when we want a quick way to form an idea about something we are not familiar with (according to the statistics presented by the Internet rating agency Alexa, Wikipedia is now the seventh most popular website worldwide). One answer is that we in fact trust Wikipedia (and other forms of online knowledge) for reasons that are "pragmatic" rather than "epistemic" (Goodwin, 2009). In other words, we have no way of accurately judging the specific expertise of the individual authors of an article, as in most cases they are anonymous or use a pseudonym. Nor is it reasonable to rely on the so-called "wisdom of crowds" (Surowiecki, 2005) (i.e., the emergent quality of the average opinions of a large number of people, which exceed that of

the opinion of each person taken individually), because, as a look at the data will show, most of the substantial edits on Wikipedia are the work of a very small number of very active editors, who are far being a "crowd". Lastly, we cannot even rely on our own personal experience in using Wikipedia, as we rarely have direct and explicit conformation or disproof of the articles we ourselves read. Thus, we do not consult Wikipedia because of any of these good "epistemic" reasons. Rather, we do so on the basis of less noble and simpler "pragmatic" reasons: as we can see, Wikipedia is now an enormous undertaking, involving thousands of volunteers who devote a tremendous amount of energy, not only to writing articles, but above all to sharing their thoughts and agreeing on procedures for working effectively together. These volunteers continually discuss what can and cannot be included in the encyclopedia, the style to be used in articles, the proper use of sources, and practical methods for limiting the effects of vandalism, deliberate errors and malicious edits. This massive collective effort that goes into the meta-encyclopedic aspects is entirely transparent and documented online, as are the articles themselves. For example, certain Wikipedia articles open with a warning that the article in question is still only a draft, that it does not cite references and sources, or that it is disputed. From a certain standpoint, the frequency with which these flags appear should undermine our overall trust in Wikipedia, given that so many articles are declaredly low in quality. On the contrary, the pragmatic effect of these warnings is to reassure us that the extended community of Wikipedia volunteers is aware of the limits of an undertaking of this kind, is working to overcome them, and in general acts with the best of intentions for the encyclopedia's users.

This type of "pragmatic" trust is the same we can assign (or not assign, if the necessary underpinnings are lacking) to any form of knowledge offered on the Web. In general, it is difficult to directly assess the expertise of the authors of online content. But we can proceed as we do when choosing a plumber to fix a dripping faucet: we may not know him already, and so we have no idea how good he is at getting rid of leaks, but before deciding we ask ourselves if he has a good reputation, if someone we know has been satisfied with his work, if he offers a formal guarantee, if we have legal recourse if something goes wrong, if he can hope that we will continue to be his customers if he does a good job or knows that this will be the only time he will see us. In other words, we look for indicators of his good faith and of whether he will do everything he can to do a good job, and also ask if he has any reason (economic or otherwise) not to do a good job or even to cheat us.

This pragmatic trust is what we can learn to apply to knowledge produced online: here, the environment we move in is complex and uncertain, beset with risks and opportunities. Lacking any epistemological certainty, perhaps we can settle for the "reasonable probability" that a particular webpage is fairly reliable because it shows that it is aware of the limits (or the counterarguments) to what it presents, because it is edited by a person or organization who is known to us and belongs to a social network of which we are a part, because it has a history of providing reliable content and because its reputation for accuracy is its most important asset. Conversely, we can refuse to trust pages that ignore positions other than those they support, are promoted by unknown parties with no significant public social links, have shown themselves to be unreliable in the past, or whose sensational or emotionally charged tone reveal them to be clickbait. Naturally, this kind of trust is probabilistic rather than absolute, ranging along a continuum where most concrete situations will fall at some intermediate point of the scale.

These pragmatic and probabilistic mechanisms for constructing and managing trust are so important in the network society that attempts are being made to formalize them in some way, for example in the artificial intelligence models implemented in software agents. Yet another signal can be seen in the proliferation of official processes for certifying the reputation of individuals and groups: from feedback regarding seller reliability in systems like Ebay, to the financial ratings for businesses, banks and countries.

In an intrinsically insecure and uncertain society (Beck, 1986; Giddens, 1990), the notion of reputation becomes a fundamental tool for building our relationships and guiding our conduct, both increasingly indirect and mediated by technology. Naturally, the usefulness and effectiveness of

systems like Ebay or the various platforms where everyone can rate other users' contributions by assigning scores or giving positive or negative feedback will depend on their cultural context, and in any case have a number of limitations. And yet, despite these limitations, living in a "reputation society" (Masum & Tovey, 2012) calls for an increasing ability to exercise critical judgment regarding the relationships and knowledge we encounter, using parameters that go beyond their power of suggestion. This can enable us to avoid the sense of powerlessness and confusion resulting from an ingenuous and absolute cognitive relativism ("nothing is certain"; "one opinion is as good as another") which ends by granting equal credence to creationism and evolution, fable and science, hoaxes and attested chronicle.

BEWARE OF THE "BUBBLE EFFECT"

The online channels that propagate hoaxes, conspiracies and unsubstantiated rumors are extremely efficient. But in theory, those that carry corrections of errors should be equally so. In the open source software paradigm, for example, one of the competitive advantages over proprietary software is precisely the fact that anyone can correct malfunctions through changes to the source code[5]. Unfortunately, this principle, which almost suggests a form of Darwinian evolution for the products of online collaboration, does not seem to apply to all forms of knowledge. Hoaxes spread much more rapidly than their debunking, confirming and strengthening mechanisms that have been familiar for decades to students of gossip and rumors (Allport & Postman, 1946). Not only: online rumors continue to be spread even by those who should be well aware that they are baseless. In the example of the description of the wolf pack discussed in the foregoing pages, comments and sharings continue regardless of the multiple posts, and the many links, pointing out that the description was invented out of the whole cloth: "Why couldn't it be true ...for me it is ...even if it weren't it's a nice story."

Nevertheless, there is more here than simple confusion between reality and imagination, between scientific expertise and "free opinion" based on nothing. The structure of the Web, and of social media in particular, readily fuels its users' cognitive closure. Someone who believes that the world (or a pack of wolves) works in a certain way will have no trouble finding continual and abundant confirmation of his convictions, be they right or wrong. Indeed, it would appear that those who spread or share false or unverified (and often unverifiable) information are more prone than others to draw on the opportunities for cognitive closure offered by the Web. A large-scale study conducted on over one million individuals (Bessi et al., 2015) empirically demonstrated that people who habitually share "conspiracy" stories (in the Popperian sense of "non-verifiable", rather than necessarily false) consume, comment on or share content that is scientific in nature (scientific in this case meaning verifiable, rather than true) very infrequently: much less than "scientists" (with apologies for the unfortunate shorthand) read, comment on or share "conspiracy" content. This means that certain people (including, presumably, habitual purveyors of hoaxes) are more likely than others to seal themselves off in a world of their own making, ignoring other viewpoints. Not only, but these same people are those who interacted most (in around 80% of all cases) with certain deliberately false content monitored by the study's authors. Which is to say: we do not know whether the "conspiracy theorists" are easily duped, or whether they have "awakened from their media-induced torpor" (because by definition conspiracy theories cannot be empirically refuted); what we do know is that they will be the first to spread and share content that is certainly false (because we created it ourselves for that very purpose) (Bessi et al., 2015).

While it is true that certain content spreads on the Internet despite being shown to be false, it is even more alarming to know that debunking at times not only fails to quash the information it hopes to target, but even reinforces it. An example is provided by political messaging, where the official denial of statements attributed to a certain public figure end by strengthening the conviction among voters in the opposing camp that the original information was correct after all (Nyhan & Reifler, 2010). In general, this also occurs because people have emotional investments in their beliefs. If we

are confronted with evidence that something we firmly believe in is wrong, we can always "change the evidence" and thus avoid having to change our conviction (and with it, perhaps, our entire value system). In other words, we tend to deploy strategies for reducing what psychologists have long known as "cognitive dissonance" (Festinger, 1957). Pace the recent popularity of the term post-truth, strategies for reducing cognitive dissonance have always existed. Today, however, with the Internet we have so much information available to us, and of so many kinds (true, false or plausible) that it is far simpler and easier to "change the evidence" rather than the conviction. Given any particular denial or any particular counterargument, it will always be relatively easy to find new arguments on the Web that can rehabilitate the original conviction: the breadth and variety of content immediately available online will always enable us to find the "confirmation" we seek.

The risk then is that our online experience becomes gratifying simply because we, consciously or not, are open to considering only that which does call our certainties into question. We interact in groups of people who share our outlook; we consult websites dedicated to our own interests, lifestyles, philosophies; we put ourselves at the center of social networks tailored to us. This risk has been pointed out since computer-mediated communication first attracted scholarly attention and has been assigned a number of labels over the years, including cyberbalkanization, echo chamber (Sunstein, 2002), and bubble effect (Pariser, 2012). It is a risk that arises from the online information ecology, which is heavily based on homophily and on the group polarization dynamics that often result from it.

Here again, however, we are dealing with a phenomenon that has changed profoundly in recent years. Since the first rhetorical descriptions of virtual communities, the Web has enabled us to meet and interact easily with like-minded people. However, today we live in an online world where homophily is not the outcome of our own choices, but the objective of algorithms that filter out everything we do not like, without our realizing it. The most telling example is Google: for several years (specifically, since December 4, 2009), the search engine's results do not simply list the pages considered most relevant to our search words. In addition to the pages' content and their incoming and outbound links, in fact, the PageRank algorithm which orders results also takes our personal characteristics into account: the geographical area we have connected from, the browser we are using, the other searches we have made in the past. If we also use other services offered by Google, the amount of information considered by PageRank increases out of hand: it is hard even to imagine the details we reveal through our email (Gmail), the photographs and documents we store on the cloud (Google Drive), our address book and appointments (Google Contacts and Calendar), our trips and physical movements (Gmaps), and so forth. This prodigious amount of personal information and the enormous number of traces we thus leave is also used by the algorithms that shape the world to our own liking. Platforms like Google become the lens through which we see the world, but this lens carries a unique and personal filter which shows a different world for each of us.

Algorithms of this kind are now used, and continually tweaked, by all the major online platforms: even the news appearing every day on our Facebook wall is selected, naturally, on the basis of hundreds of variables, including our tastes and past behavior. Not everything our friends do, for example, is given equal attention. In the digital environment, the frequency with which we encounter people we like, content that interests us, ideas we agree with, is becoming less the result of our own decisions, and more the outcome of technological and commercial strategies designed to guess what we could presumably want (and buy), hiding everything else from us. Suddenly, we are delivered from the unbearable complexity of postmodern society, and deposited safely in a flat, clean, consistent and reassuring world.

CONCLUSION

The mainstream media presents the problem of so-called fake news as an ever-worsening emergency in the information society. However, it is important to distinguish between various types of misinformation. This paper has provided examples of at least three different categories: true hoaxes,

misinformation resulting from rumors, and conspiracy theories. Naturally, other examples could be offered that fall somewhere between these categories, as well as in the middle ground between "good" and "bad" news. The first conclusion, then, is that drawing a sharp line between information and misinformation is simplistic. Nevertheless, such oversimplification is increasingly common, and is often used solely as a means of discrediting opposing political opinions.

Second, people who spread misinformation are at times more aware of doing so than might be thought. They are not necessarily stupid or naive, but people who mix settings and spheres that differ in meaning: scientific information, news, fiction, poetry, satire. The best description of this personal blend is the comment made in response to the wolf story illustrated earlier: "even if it isn't true, I like it anyway". This does not make the problem disappear or make the description of the wolves any more accurate, but at least it enables us to understand that the problem does not simply arise out of ignorance.

For this and other reasons, attempts at debunking and fact-checking, however thorough and systematic they may be, are often not only ineffective, but in fact reinforce partisan polarization (Zollo et al., 2015). Similarly, the legislation recently proposed in Europe (and in particular in Spain, Italy and Germany) to make "hoaxes" "illegal" are doomed to miss their target: which of the different types of misinformation would the law root out? Who would be held responsible: those who create the news in the first place, those who spread it, or those who manage the platform on which it is posted?

More than policies for suppressing misinformation, what we probably need is to acquire further skills and educate ourselves in the use of social media. This could take place on at least three fronts: first, we must be aware of when a collapse of contexts occurs, and news that is ostensibly scientific takes on narrative or even poetic tones. The Web facilitates and encourages mash-ups (Jenkins, 2006), ending by producing hybrid content that goes viral. Second, it is advisable to cultivate our ability to grant trust on a pragmatic basis: it may be increasingly difficult to tell whether a news item is an objective report on events, a poetic or allegorical free interpretation, a work of art or an out-and-out hoax. However, there are certain clues that could help us understand whether a source is reliable, if we are able to discern them. Lastly, the bubble that algorithms create around us is by now virtually inescapable (Pariser, 2012), but we can demand greater transparency from the digital platforms in this connection, and greater clarity about what is filtered from us.

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ENDNOTES

1. http://www.matteorenzi.it/enews-422-14-aprile-2016/
2. In reality, the photo had also appeared in the preceding weeks on the profile pages of other users in Italy and abroad, though its circulation was lower, possibly because of the differing network of weak ties commanded by the users in question.
3. As of January 2017.
4. Fairleigh Dickinson University's PublicMind Report, 2015, http://publicmind.fdu.edu/2015/science/
5. In the programming world, this principle is known as Linus's Law, from the name of Linus Torvalds, founder of the Linux operating system: "Given enough eyeballs, all bugs are shallow").